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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,800	08/17/2006	Youji Inoue	U 016441-4	2403
140	7590	04/13/2009	EXAMINER	
LADAS & PARRY LLP 26 WEST 61ST STREET NEW YORK, NY 10023			SUCH, MATTHEW W	
			ART UNIT	PAPER NUMBER
			2891	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/589,800	Applicant(s) INOUE ET AL.	
	Examiner MATTHEW W. SUCH	Art Unit 2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's submission of translated papers of the foreign priority application JP 2004-041397 dated 18 February 2004. Therefore, the rejections of claims 11-13 set forth in the Office Action mailed 3 September 2008 have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly discovered prior art.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto (Annual Review 2003; provided to Applicant with Office Action dated 7 September 2007) in view of Dimitrakopoulos (J. Appl. Phys., Vol. 80).

a. Regarding claim 11, Sakamoto discloses perfluorinated pentacene (C₂₂F₁₄; otherwise known as tetradecafluoropentacene) for use as an n-type semiconductor in OFETs (see page 243 of Annual Review 2003 publication) but does not recite that the

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material is formed by controlling the temperature of the substrate to 24°C or higher and 60°C or lower in a vacuum of 1×10^{-4} Pa or lower. However, Dimitrakopoulos discloses organic film growth at a substrate temperature of, for example, 45°C (Fig. 3 caption and Page 2503, Left Col., Line 23, for example) at a pressure of 10^{-9} Torr (Page 2502, Right Col., Lines 30-31), which is 1.33×10^{-7} Pa. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to have deposited perfluorinated pentacene of Sakamoto at a temperature of 45°C and pressure of 10^{-9} Torr, which is 1.33×10^{-7} Pa as taught by Dimitrakopoulos so as to form highly ordered polycrystalline organic thin films that exhibit competitive performance characteristics such as carrier mobility, on/off ratio, threshold voltage, conductivity and subthreshold slope (see Dimitrakopoulos Page 2506, Right Col., Lines 32-46, for example).

b. Regarding claim 12, Sakamoto discloses perfluorotetracene ($C_{18}F_{12}$; otherwise known as dodecfluoronaphthacene) for use as an n-type semiconductor in OFETs (see page 243 of Annual Review 2003 publication) but does not recite that the material is formed by controlling the temperature of the substrate to 24°C or higher and 60°C or lower in a vacuum of 1×10^{-4} Pa or lower. However, Dimitrakopoulos discloses organic film growth at a substrate temperature of, for example, 45°C (Fig. 3 caption and Page 2503, Left Col., Line 23, for example) at a pressure of 10^{-9} Torr (Page 2502, Right Col., Lines 30-31), which is 1.33×10^{-7} Pa. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to have deposited perfluorotetracene of Sakamoto at a temperature of 45°C and pressure of 10^{-9} Torr, which

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is 1.33×10^{-7} Pa as taught by Dimitrakopoulos so as to form highly ordered polycrystalline organic thin films that exhibit competitive performance characteristics such as carrier mobility, on/off ratio, threshold voltage, conductivity and subthreshold slope (see Dimitrakopoulos Page 2506, Right Col., Lines 32-46, for example).

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (Suzuki *et al.*, Proc. 2003 MRS Fall Meeting, K10.52 as provided in the Information Disclosure Statement) in view of Bao ('237). Suzuki disclose synthesis and properties of perfluorinated pentacene ($C_{22}F_{14}$), as the n-type semiconductor material in organic field effect transistors, OFETs (see section K10.52 of MRS Fall 2003 Symposium Program: "Symposium K: Functional Organic Materials and Devices"). While Suzuki teaches an organic field effect transistors, there is no disclosure that thin films of gate electrode, gate insulating film, the perfluorinated pentacene organic semiconductor film, and source and drain electrodes stacked on a substrate in this order.

However, Bao teaches a configuration of an organic thin-film transistor comprising a substrate (Element 2) with thin films of a gate electrode (Element 1), gate insulating film (Element 3), organic semiconductor (Element 4), and source and drain electrodes (Elements 5 and 6) stacked in this order. It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the organic thin-film transistor of Suzuki with the a gate electrode (Element 1), gate insulating film (Element 3), organic semiconductor (Element 4), and source and drain electrodes (Elements 5 and 6) stacked in this order, as taught by Bao. One would have been motivated to do so since Bao teaches this configuration allows for the organic semiconductor film to be formed on the gate insulator after curing the gate insulator and forming

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the source and drain electrodes on the organic semiconductor produces better contact between the electrodes and organic semiconductor (Col. 7, Lines 55-59).

The language, term, or phrase “controlling temperature of the substrate and vacuum-depositing on”, is directed towards the process of making an OFET. It is well settled that “product by process” limitations in claims drawn to structure are directed to the product, per se, no matter how actually made. In re *Hirao*, 190 USPQ 15 at 17 (footnote 3). See also, In re *Brown*, 173 USPQ 685; In re *Luck*, 177 USPQ 523; In re *Fessmann*, 180 USPQ 324; In re *Avery*, 186 USPQ 161; In re *Wethheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re *Marosi et al.*, 218 USPQ 289; and particularly In re *Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a “product by process” claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in “product by process” claims or otherwise. The above case law further makes clear that applicant has the burden of showing that the method language necessarily produces a structural difference. As such, the language “controlling temperature of the substrate and vacuum-depositing on” only requires an OFET, which does not distinguish the invention from Suzuki in view of Bao, who teaches the structure as claimed.

Response to Arguments

5. Applicant's arguments with respect to claims 11-13 have been considered but are moot in view of the new ground(s) of rejection.

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Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW W. SUCH whose telephone number is (571)272-8895. The examiner can normally be reached on Monday - Friday 9AM-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Purvis can be reached on (571) 272-1236. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew W. Such/
Examiner, Art Unit 2891